CLAIMS

Sub A1.

1. An ablation treatment apparatus, comprising:

a multiple antenna device of adjustable length including a primary antenna with an adjustable length and a longitudinal axis, and a secondary antenna with an adjustable length, the secondary antenna adapted to be deployed in a direction that is lateral to the longitudinal axis, wherein the secondary antenna is constructed to be less structurally rigid than the primary antenna and the adjustable lengths of the primary and secondary antennas permits a desired geometric ablation of a selected tissue mass;

an adjustable insulation sleeve positioned on an exterior of one of the primary or secondary antennas;

an energy source; and

one or more cables connecting the multiple antenna device with the energy source.

16. 15
2. The apparatus of claim 1, wherein the primary and secondary antennas are RF antennas.

20. 15
3. The apparatus of claim 1, wherein the primary and secondary antennas are microwave antennas.

21. 15
4. The apparatus of claim 1, wherein the multiple antenna device includes at least two secondary antennas which are each independently laterally deployed along a different point along the longitudinal axis.

22. 15
5. The apparatus of claim 1, wherein the secondary antenna is retractable into the primary antenna to permit repositioning of the primary antenna.

23. 15
~~6.~~ The apparatus of claim ~~1~~, wherein the primary antenna is capable of rotational movement about its longitudinal axis.

Sub B2

7. The apparatus of claim 1, wherein the apparatus is switched between bipolar and monopolar operation.

24. 15
~~8.~~ The apparatus of claim ~~1~~, wherein the apparatus includes two secondary antennas positioned in the same plane.

25. 15
~~9.~~ The apparatus of claim ~~1~~, wherein the apparatus includes two secondary antennas that are deployed from the primary antenna in two different planes.

Sub B3

10. The apparatus of claim 2, wherein the apparatus operates in a mono-polar mode.

11. The apparatus of claim 2, wherein the apparatus operates in a bipolar mode.

26. 15
~~12.~~ The apparatus of claim ~~1~~, wherein at least one of the primary or secondary antennas is hollow and adapted to receive an infusion medium from an infusion source to introduce the infusion medium into a selected tissue mass.

27. 26
~~13.~~ The apparatus of claim ~~12~~, wherein the infusion medium is a therapeutic agent.

28. 26
~~14.~~ The apparatus of claim ~~12~~, wherein the infusion medium is a conductivity enhancement medium.

Sub B4

15. The apparatus of claim 1, further comprising:
one of a contrast agent or dye.

Sub A2.

~~16.~~ The apparatus of claim 1, further comprising:
a multiplexer coupled to the primary antenna, secondary antenna, and the power supply to multiplex energy delivered to the primary and secondary antennas.

17. The apparatus of claim 1 further comprising:
an image enhancement apparatus coupled to the multiple antenna device.

Sub B5

18. The apparatus of claim 1, further comprising:
one or more sensors positioned at one of an interior or an exterior of the primary or secondary antennas to detect one of impedance or temperature; and
a sensor feedback apparatus coupled to the sensors for maintaining a tissue adjacent to one of the primary or secondary antennas at a desired temperature.

Sub. A3.

~~19.~~ The apparatus of claim 1, further comprising:
one or more sensors positioned at one of an interior or an exterior of the primary or secondary antennas to detect one of impedance or temperature; and
resources connected with the sensors, the antennas and the energy source, the resources providing an output for delivering and maintaining a selected energy at the antennas.

44. 43
~~20.~~ The apparatus of claim ~~19~~, wherein the resources provide an output that maintains a selected energy at the antennas for a selected length of time.

22

Sub B6)

21. The apparatus of claim 19, wherein each of the primary or secondary antennas is independently connected to the resources, and the resources generate an independent output for each antenna.

31. 15
~~22.~~ The apparatus of claim ~~1~~, wherein the primary antenna is hollow and includes at least one aperture formed along the longitudinal axis of the primary antenna to laterally deploy at least one secondary antenna.

Sub B7)

23. The apparatus of claim 1, wherein the primary antenna is hollow and includes first and second apertures formed along the longitudinal axis of the primary antenna to laterally deploy a first and a second secondary antenna out of the first and second apertures.

32. 15
~~24.~~ The apparatus of claim ~~1~~, further comprising:

one or more sensors positioned at a distal end of one or both of the primary or secondary antennas, the sensors measuring one of temperature or impedance.

33. 15
~~25.~~ The apparatus of claim ~~1~~, wherein a distal end of the primary antenna is solid.

34. 33
~~26.~~ The apparatus of claim ~~25~~, wherein the insulation sleeve is in a surrounding relationship to the primary antenna, and a distal end of the insulation sleeve includes an aperture for introducing the secondary antenna.

35. 15
~~27.~~ The apparatus of claim ~~1~~, wherein at least a distal end of each primary and secondary antennas is made of a metallic conductor material.

36. 15
~~28.~~ The apparatus of claim ~~1~~, wherein the primary antenna is made of a non-metallic conductor material.

37. 15
~~29.~~ The apparatus of claim ~~1~~, wherein the secondary antenna is made of a non-metallic conductive material.

38. 15
~~30.~~ The apparatus of claim ~~1~~, wherein the secondary antenna has a distal end that anchors the apparatus in a tissue site.

Sub. A1

~~31.~~ An ablation apparatus, comprising:

a multiple arm device of adjustable length including a primary arm with an adjustable length and a longitudinal axis, and a secondary arm with an adjustable length, the secondary arm adapted to be deployed in a direction that is lateral to the longitudinal axis, wherein the secondary arm is constructed to be less structurally rigid than the primary arm and the adjustable length of the primary and secondary arms permits a desired geometric ablation of a selected tissue mass;

an energy source; and

one or more cables connecting the multiple arm device with the energy source.

2. 1
~~32.~~ The apparatus of claim ~~31~~, wherein one of the first or second arms is an RF antenna.

3. 1
~~33.~~ The apparatus of claim ~~31~~, wherein one of the first or second arms is an RF antenna, and the other arm is a microwave antenna.

24

4. 1
~~34.~~ The apparatus of claim ~~31~~, wherein one of the first or second arms incorporates a thermal sensor at its distal end, and the other arm is an antenna.

5. 4
~~35.~~ The apparatus of claim ~~34~~, wherein the antenna is an RF antenna.

6. 4
~~36.~~ The apparatus of claim ~~34~~, wherein the antenna is a microwave antenna.

37. The apparatus of claim 31, wherein one of the arms is hollow and receives one of a laser beam delivery fiber or an optic visualization system that is directed out of a distal end of the arm.

38. The apparatus of claim 37, wherein the arm that does not receive one of a laser beam delivery fiber or an optic visualization system is one of a microwave or RF antenna.

dub A5.

39. The apparatus of claim 31, wherein at least one of the primary or secondary arms is hollow and adapted to receive an infusion medium from an infusion source to introduce the infusion medium into a selected tissue mass.

8. 7
~~40.~~ The apparatus of claim ~~39~~, wherein the infusion medium is a therapeutic agent.

9. 7
~~41.~~ The apparatus of claim ~~39~~, wherein the infusion medium is a conductivity enhancement medium.

25

Sub B9

42. The apparatus of claim 31, further comprising:

one or more sensors positioned at one of an interior or an exterior of the primary or secondary arms; and

a sensor feedback apparatus coupled to the sensors for maintaining a tissue adjacent to one of the primary or secondary arms at a desired temperature.

Sub. A6.

43. The apparatus of claim 31, further comprising:

one or more sensors positioned at one of an interior or an exterior of the primary or secondary arms; and

resources connected with the sensors, the energy source and at least one of the arms, the resources providing an output for delivering and maintaining a selected energy at an arm.

12. 11
~~44.~~ The apparatus of claim ~~43~~, wherein the resources provide an output that maintains a selected energy for a selected length of time.

Sub B10

45. The apparatus of claim 43, wherein each of the primary or secondary arms is independently connected to the resources, and the resources generates an independent output for each arm.

14. 1
~~46.~~ The apparatus of claim ~~31~~, further comprising:

one or more sensors positioned at a distal end of one or both of the primary or secondary arms, the sensors measuring one of temperature or impedance.

Added A7.

add B12